METEOROLOGICAL OFFICE

NEWSLETTER FOR CLIMATOLOGICAL OBSERVERS IN ENGLAND AND WALES

MAR 1982

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NEWSLETTER

FOR

CLIMATOLOGICAL OBSERVERS

IN

ENGLAND AND WALES

No. 8

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Produced by:

Observational Requirements
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Editorial

Well, here we are again, another year, another edition of the Newsletter.

One major announcement I am pleased to make is that the new scheme for awards to observers began last year (too late for inclusion in our October edition) and details will be found in Mrs D M Allen's article in this issue. More awards will be made this year and we are hoping that most of the "back log" will be cleared, so that in future when an observer qualifies he will receive his award the same year and not several (or many) years later.

We have heard from many stations who did not receive their forms parcels towards the end of last year and consequently were unable to begin using the new version of Met Form 3208B on the 1st January 1982. We apologise on behalf of our London Forms Store staff who were unable to get all issues away in time because of the many changes that were introduced and because of delays due to new forms not arriving from the printers and so on.

If any stations are still short of forms, labels, etc, would they please contact us at Met O 1c(3) and we will do everything we can to expedite deliveries.

Finally, may I draw your attention to the article by Mr C S Broomfield on the handling of minimum thermometers. I'm sure even the most experienced of observers will find this article of interest.

Mike Longworth

OBSERVERS AWARD SCHEME

Several years ago the idea was put forward to recognise, in some way, the contribution our observers make to climatology. We eventually obtained financial approval for an award to be made to any of our observers who had maintained daily observations and submitted monthly returns of good quality, for more than 15 years. Additionally, a special award of a barograph is made to selected climatological observers after 30 years of exceptional service.
It was decided that the most appropriate award should be "The University Atlas" which would be of the greatest interest to each recipient.

On examining our records we found that there were a large number of observers who would qualify but on the first occasion of the award being made at the end of 1981, only about a third of those qualifying could receive a book on this occasion. However, each successive year will see the remaining observers receiving their copies suitably inscribed with the appropriate period of service.

We chose the observers who had served longest or who had completed 15 years and were about to retire, to be among the first to benefit. To those of you who feel that you already qualify, please be a little patient with us as only a limited number of books will be available each year and observers in Scotland and Northern Ireland must also be included.

Most of the books had to be sent through the post and therefore came as a complete surprise to the recipient. We would have preferred to have been able to make an actual presentation to those nominated but it would have been too time consuming and costly to organise. In Scotland and Northern Ireland it was possible in a few cases for a member of staff to present the award. In England and Wales only one could be delivered personally as it happened to coincide with an inspection visit.

Those nominated for the award in 1981 are as follows:

Observer	Station	Period of Service
W D Burrell	Newport (Salop)	28 years
T Bridge	Lyonshall	28 "
W B Evans	Gogerddan	28 "
K Pack	Caldecott	27 "
J Randall	Pickering	27 "
Mrs A M Lee	Aylesbury	26 "
E W Culling	Lacock	25 "
D J Brazier	Moreton Morrell	25 "
Miss E M Cooper	Hurley	24 "
A T Day	Rothamsted	24 "
G Pearce	Woburn	23 "
G D Pope	Woburn	23 "
E T Clugstone	Elmstone	23 "
E A Bonser	Newtown Linford	23 "
K A S Gabriel	Silpho Moor	22 "
K W Bryar	Falmouth	21 "
B J Firmin	Halstead	21 "
Miss E J Price	Hoddesdon	21 "
R Bowles	Knutsford	21 "
C H White	Long Sutton	21 "
H F Grundy	Helmshore	20 "
J S Powell	Penmaen	20 "
E A Marschner	Teignmouth	20 "
H Williams	Carmarthen	20 "
H Edwards	Crumbland	19 "
Mrs E Odlum	Kirkham	19 "
S Hall	Eastbourne	19 "
I E Burton	Buxton	18 "

Desiree Allen

AN INTRODUCTION TO THE WORK OF THE METEOROLOGICAL OFFICE, BRACKNELL.

The Meteorological Office, formed in 1854 as a department of the Board of Trade, is now responsible to the Under Secretary of State for Defence for the Royal Air Force. It functions as the National Service for the collection, analysis and supply of weather information and carries the major responsibility for meteorological research in the United Kingdom. The two Directorates - Services and Research - are sub-divided into 22 Branches of which 8 are directly involved in research. The Office employs about 2600 staff. About 1200 work at Bracknell, the remainder at outstations including RAF and Civil airfields, observatories and research stations.

The United Kingdom is a member of the World Meteorological Organization (WMO), a specialist agency of the United Nations with 146 States and Territories as members.

The Richardson Wing at Bracknell houses the three key operational Branches: Telecommunications Centre, Computing Laboratory and Central Forecasting Office. The wing is named after Dr L F Richardson who in 1916 first conceived the idea of computing the future state of the atmosphere from the mathematical equations which describe its behaviour, an idea which could not be implemented at the time because the speed of human computation could not keep pace with the weather. Only with the advent of electronic computers could the vast number of calculations be carried out fast enough.

The Meteorological Office now has a very powerful computer system and its application to mathematical techniques now available holds the promise of marked improvements in the accuracy of forecasts.

However, the accuracy of a forecast depends not only on computing power and mathematical techniques but also on the quantity and quality of observational data from the surface of the earth and the upper air. Every forecast requires a basic set of data as its starting point and the major operational work at Bracknell demands that observations from the whole Northern Hemisphere are available at regular intervals.

(To be continued)

NEWS OF STATIONS

Several stations have closed during the last few months. Unfortunately, most Authorities today are having to cut expenditure and the axe seems to fall, figuratively speaking, of course, on the climatological station. This is a great pity from our point of view, but ultimately it is a loss to the community as a whole, because the community will benefit from the total sum of climatological knowledge.

Those stations which closed included Kings School, Pontefract which had given a long period of co-operation, reports from Pontefract having first appeared in the Monthly Weather Report in 1926. Bromley, Kent and Medmenham, near Marlow, Bucks also closed.

Helmshore, the MAFF agro-met station near Rossendale in Lancashire and Fernhurst, another agro-met station, near Haslemere, Surrey, both with long period records, closed but we are hoping that Fernhurst will continue as a rainfall station.

The climatological station at Dunkeswell East Devon closed and so did the Forestry Commission Agro-met station known as Crumbland at Devanden, Nr Chepstow. The Forestry Commission have transferred the meteorological equipment and instruments from Crumbland and set up a new station at Westonbirt, near Tetbury, Glos.

The only other new station to open during the period under review is the Agro-met station at North Wyke, near Okehampton, Devon. This is being run by the Grassland Research Institute.

We welcome these two new stations to the Voluntary Network.

Observers Notes

After requesting a replacement maximum thermometer early in the New Year, one of our stations added the following postscript:

"You may like to pass this on to the Editor of the Newsletter - the accidental breakage of the maximum thermometer occurred when one of the assistant observers was re-setting the instrument on Boxing Day morning. She was wearing new gloves for the first time and of course the thermometer shot out of her hand and smashed to bits on the frozen ground - the hazards of Christmas presents".

Perhaps one should add: the hazards of handling thermometers while wearing gloves, a practice not to be recommended when re-setting thermometers.

Who's who in Met O 1 (continued)

Desiree Allen

Joined the Meteorological Office and served with WAAF 1942-46. After demob. was posted to the Central Forecast Office, then at Dunstable. In 1947 was transferred to the Office "on the Air Ministry Roof" in London remaining there until marriage in 1959 and requesting a posting to Met O 3, then at Harrow.

Resigned in 1961 to start a family but rejoined in 1962 and took up post at the London Weather Centre until transfer to Bracknell in 1964. From then until the end of 1965 assisted in the preparation of the now defunct Daily Weather Report. After a period in a Research Branch 1966-73 was promoted to Scientific Officer and given the present job of arranging the inspections of and assisting with the administration of the voluntary climatological station network.

MINIMUM THERMOMETERS

Minimum thermometers supplied by the Meteorological Office for use in thermometer screens or to record the lowest temperature over a grass, concrete or bare soil surface are filled with alcohol with a small index placed in the bore below the liquid surface. The liquid is colourless.

Each thermometer is tested for accuracy before issue and is in serviceable condition when packed. Unfortunately owing to the shaking the thermometer receives in transit, breaks almost invariably occur in the column of alcohol. These breaks appear as bubbles in the alcohol column, and to anyone unfamiliar with such conditions it may seem that the instrument itself is broken. The thermometer is seldom damaged, but it is essential that the bubbles are removed and the alcohol thread rejoined before the thermometer is used. It is usually quite easy to rejoin the spirit thread, and the following methods are suggested:

STAGE ONE

Tapping method. If there are small quantities of alcohol between the bubbles these can be tapped down to the main body of the liquid. The thermometer should be held at about 45° with the bulb end downwards, and the side tapped with the fingers. Larger quantities of alcohol cannot usually be dealt with in this way, and it is therefore necessary to apply one of the undernoted methods.

Bouncing method. Lay a thick Telephone Directory (or thick wad of paper or newspapers) on a table. Hold the thermometer vertically, bulb end downwards and about 5" above the Directory. Let the thermometer slip through the fingers so that the bulb end bounces on the Directory. Continue to bounce the bulb end until all the bubbles have gone and the spirit column shows no breaks. This procedure may take only a minute or so, but in stubborn cases may take considerably longer.

Jerking method. Grasp the thermometer firmly in the right hand an inch or so above the bulb. Clench the fingers of the left hand tightly and bring down the side of the right hand on the side of the clenched fist of the left hand. Continue to do this until the bubbles have cleared. Keep the thermometer clear of coat sleeves, wrist watches etc. This method if continued for any length of time will cause the sides of the hands to become sore, and should never be used by people who bruise easily or who suffer from arthritis, rheumatism, etc. If none of the foregoing methods is effective, use the heating method.

Heating method. Prepare a vessel of warm (NOT boiling) water - just too warm for the hand is about right. Hold the thermometer upright with its bulb in the water, tapping and shaking from time to time. Watch carefully and take the bulb out of the warm water as soon as the top of the spirit column reaches the small safety chamber at the top of the stem, otherwise there is a risk of bursting the thermometer. By this combination of heating and shaking, the bubbles can be driven up the tube and into the safety chamber.

STAGE TWO

Whichever of the above methods is selected it is most important that after the bubbles have been cleared the thermometer is left standing upright, bulb end downwards, for at least 24 hours otherwise bubbles are likely to reform.
A spare raingauge bottle or a clean empty milk bottle makes a convenient holder.

(C.S.Broomfield Met01c(3)).

READERS LETTERS

One enquiry we had recently queried the change of headings on Metform 3208B for Soil Temperatures.

On the now obsolete version of Metform 3208B the headings were:

Temperatures				
Soil		Earth		
at 10 cm	at 20 cm	at 30 cm	at 50 cm	at 100 cm

On the revised (1982) version the headings are:

Soil				
at 10 cm	at 20 cm	at 30 cm	at 50 cm	at 100 cm

The questions asked by our observer were:

i. has the Meteorological Office dropped the word "Earth"?

ii. what happens if the station records 30 cm temperatures under bare soil and 30 cm under grass covered surfaces, i.e. 30 cm Earth?

Well, briefly the answer to i. is 'Yes'. The ruling was given by WMO (World Meteorological Organization) that the word "Earth" should be replaced by "Soil". So we have had to do just that.

ii. Well, it does not concern many stations, but for those involved, no change of procedure is intended. The temperature of the ground at 30 cm that is to be entered on Metform 3208B (either the old or revised versions) is that measured (under grass) by means of a thermometer suspended in a steel tube to that depth. If any station records temperature of the ground (under bare soil) at 30 cm by any means, for its own purposes, then local records may need to be annotated as necessary.

Readers might be amused to know that we still have to ask our Stores Branch for Tubes, Earth, and Thermometers, Earth as vocabularies of Stores are not governed by WMO.

Levington, Ipswich
DCNN 3172

31 December 1981

Dear Mr Swift/Mrs Allen

I have now received the details of the revised coding for recording State of Ground, as from 1 January 1982. Generally speaking it is straightforward, but I do have a couple of queries about the interpretation of certain items.

1. What is the difference (if any) between Coded entry 5 in column 53, i.e. Glaze on Ground, and Coded Entry 0 in column 54, i.e. Ground is predominantly covered with ice?

Is the ice in coded entry 0 derived from melted and refrozen snow, while the glaze in C.E.5 is from freezing rain? It is not clear to me. Should not this latter have been included in column 54?

2. Since the representative bare ground should be "disturbed as little as possible and allowed to consolidate naturally" (para 6.1.1 Observers Handbook), when does one record loose dry dust or sand? i.e. Codes 6 to 8 in column 53. Does this only refer to such light sandy soils which never compact, which can be found in parts of east Ipswich?

I would be glad if you would put me right on these two questions.

Yours sincerely

K H Brown

COMMENTS ON STATE OF GROUND CODES

1. If one considers the definition of glaze as given in the Meteorological Glossary the difference between code figure 5 of Code E and code figure 0 of Code E' becomes obvious. /Editor - not many of our observers will have access to this book but the following is quoted from it/

2. GLAZE code figure 5 of Code E is defined as a generally homogeneous and transparent deposit of ice formed by the freezing of supercooled drizzle droplets or raindrops on objects the temperature of which is below or slightly above 0°C. It may be produced by the freezing of non-supercooled drizzle droplets or raindrops immediately after impact with surfaces the temperature of which is well below 0°C. GLAZE is frequently called CLEAR ICE or popularly BLACK ICE.

3. Glaze on ground must not be confused with 'ground ice', which is formed when

1. water from a precipitation of non-supercooled drizzle droplets or raindrops later freezes on the ground,

2. snow on the ground freezes again after having completely or partly melted, or,

3. snow on the ground is made compact and hard by traffic.

Ground ice is reported as code figure 0 of Code E'.

4. State of ground code figures 3 and 5 to 9 of Code E should all refer to an open representative area round the station. It is correct that in the British Isles it would be appropriate to use code figures 6 to 8 to report the blown powdered top soil as experienced in parts of East Anglia, for example, in very dry weather.

5. While it may appear that some of these codes for State of Ground may seem a little strange it should be borne in mind that they are framed for International Usage.

L R Walker
Met O 3A

AGAIN, THE SUNSHINE CARD

YET ANOTHER BARD

Brooms Barn
Suffolk

The biggest shock ever I have received recently -
Cutting off the extra corners and doing the job decently.

Winter cards they are, I said to myself -
'Ah well, perhaps they have made a mistake'
Putting them back on the storage shelf.

My inquisitive mind forced me to investigate.
There they were, printed upside-down and difficult to assimilate.

I thought to myself 'are they for Down-Under?'
Mind you, my brain began to ponder.

If you are of foreign extract one can find it confusing.
All that writing, not every detail amusing.

It makes little sense if the card changing
Happens to be when the sun is not reigning.

My friend, who is an FRMS, scanned the card too.
In about five minutes he knew who was who.

It is plain to see that times have changed and leisurely life we pursue.
Makes me wonder whether there is room in this life for one who
for so many years changed the cards by torch light after darkness
And intended to do so until sunset - 9th September 'eighty two.

If only I could find a separate column 'Total for the day'
I think I would retire without having all these 'Rhymes' to say.

J Iwanicki

Editor:
It seems that our observer does not believe in changing the sunshine card if the sun hasn't been reigning (I mean shining) during the day, contrary to Met Office procedure as given on p. 148 of Observers Handbook (1969 Edition) para 10.3.

Bournemouth Meteorological Registrar
258 Windham Road
Bournemouth BH1 4QX

Dear Editor

Having attended the Observer's Course at Shinfield Park in May of this year, I felt I must write to thank all those concerned in the Course, especially Mr John Philpot. It was a marvellous course, striking the right balance in helping in observing and also looking deeper into the weather, and the practice of the meteorological service.

Also a special thanks to the professional met. men on courses at Shinfield, who, at the bar in the evenings were more than willing to answer questions between pints from the amateur. May I take this opportunity to wish my fellow course members best wishes and good observing.

I wonder if anyone could answer my question on the radiation cooling with different soils, eg the Bournemouth Health Resort Station is approximately two miles as the crow flies from Hurn Airport Met Station, and sometimes in winter the difference in air temperature is as much as 4°C ie Bournemouth - 3°C, Hurn - 7°C. I know Hurn is a frost hollow and also has sandy soil, is there a rough scale on different soil types for radiation cooling?

Yours faithfully

Peter Rogers

RADIATION COOLING

In his letter Peter Rogers asks whether there is a rough scale for soil types for radiation cooling. This is a simple question - the answer is not so easy. Night grass minimum temperatures differ from place to place because of variations in cloud cover (particularly near coasts), the lie of the land or degree of sheltering (frost hollows) or the proximity of the coast. Certainly the soil type plays a part as Peter suggests. Sandy soils on the whole have a lower capacity for retaining water than loams and clay soils. Being drier means that they warm up and cool down more readily but the nature and depth of the surface cover is also important.

Because the degree of cooling depends on the amount of water retained in the soil it is not possible to give a 'rough scale' except that, all other things being equal, the night minimum temperature over a dry sandy surface will be lower than over a wet loamy one.

L R Walker

MIRAGES

Some time ago Mr Tyssen-Gee asked for an explanation why the reflection of objects like white posts seen over our black roads on a very hot summer day appear to be considerably magnified - a feature not explained in the general discussions of mirages.

Since this is basically an Optical rather than a Meteorological phenomena, I have rather sat back and hoped an expert would come up with the explanation. No one has, so as my swan song I will proffer the following theory. The posts are not magnified at all. The illusion of magnification is produced by the shimmer giving the image of the post in one position one second and in another position the next, etc, and so producing rapidly changing overlapping pictures which are seen by the eye as a larger object.

L R Walker

Editor: Mr L R Walker of Met O 3(a) refers above to his "swan song". He means by this of course that he retires soon, in May, and we wish him every happiness in his retirement. We in Met O 1c(3) will miss his useful contributions to the Newsletter.

WEATHER IN THE UNITED KINGDOM JULY-DECEMBER 1981

For much of July it was changeable and rather cool although it was often mainly dry in the south and east. A change to more settled summer weather took place during the last week, the Royal Wedding day on the 29th being mostly warm and sunny. This improvement was maintained, at least at times, during August and into September, temperatures exceeding 25°C on a number of occasions in the south-east. However, thunderstorms occurred from time to time during July and early August, mainly over central and southern areas where they were particularly violent on 9th July and 5/6th August. Outstanding rainfall on 9th July included 80 mm in 70 minutes out of a total fall of 81.5 mm in Derby, 58.2 mm in 50 minutes on the roof of the London Weather Centre and 51.5 mm and 50.3 mm in two separate storms out of a total fall of 103.6 mm at Herongate, near Brentwood in Essex, and on 5/6th August, 132.0 mm at Eaton, near Tarporley in Cheshire, the largest daily total rainfall since records began in 1877 in the Manchester area with 100.5 mm at East Didsbury and 95.9 mm in 11 hours at Ringway Airport on the 5th, 72 mm in 1 hour out of a total fall of 84.9 mm at Crouch End in North London on the 6th and 132.3 mm at Norton Junction, near Daventry in Northamptonshire during the two 'rainfall' days. There was severe flooding in places, including Central London where King's Cross station was closed on both occasions. Nevertheless, August was the driest and warmest in most parts of the United Kingdom since 1976 while over much of England, Wales and east Scotland it was also the sunniest. Less than 10 per cent of the average rainfall was recorded at some places in central Scotland and south-west England, particularly in Cornwall. Unsettled weather gradually spread from the west to all parts by 11th September and the remainder of the month and also October were wet with heavy rain or showers at times. More than twice the average rainfall was recorded in several areas, particularly during September when new records were established at a number of places, perhaps the most outstanding being at Abbotsinch Airport where the total of 227 mm was the highest in the Glasgow area since records began in 1869. Rainfall was particularly heavy in the west and north on 1st October when 130.9 mm fell at Cornaa, near Ramsey on the Isle of Man. Despite the rain sunshine was above normal during both months except in the south-west and extreme south in October. Durham with 146.1 hours had its sunniest October since 1893. Unlike September, which was warm, October was cold, the 1st, when the temperature reached 20.4°C at Enfield in Greater London, being the only reasonably warm day while frost was more frequent than usual in central and northern districts.

A change to mainly dry weather occurred over southern Britain at the beginning of November, but changeable, at times windy conditions with rain or showers at times in the north spread to the south for the last two weeks. It was very mild at times, especially from the 1st to the 3rd and between the 10th and 23rd when temperatures reached 16°C in several places. During 7th and 8th December very cold weather with snow at times spread slowly southwards to all areas except the extreme south-west. Although southern districts became less cold for a time around mid-month it was after Christmas before a thaw moved slowly northwards. Most areas had at least one heavy snowfall with accumulations of 15 cm or more while over some higher ground depths of over 30 cm were reported. Considerable drifting occurred on some occasions while road, rail and air transport were dislocated at times. Parts of the south-west were without electricity for a week from the 13th when 'wet' snow and storm force winds, with gusts of up to 82 kn, damaged the power lines. Heavy rain and thawing snow in conjunction with high tides brought severe flooding to low-lying parts of Avon and Somerset on the 13th and 14th while at the end of the month flooding in the lower Severn Valley was reported to be the worst for thirteen years. Minima of below -15°C were recorded in places on several nights, that of -25.2°C on the 13th at Shawbury in

Shropshire being the lowest recorded in England since January 1838, when -26°C was reported at Beckenham, then in Kent, while temperatures rose to only around -10°C here and there on a few occasions. In much of the north this was the coldest December since 1878 or 1950 while in the south, except the extreme south and south-west, it was the coldest since 1890. The mean temperature of -1.7°C at Abbotsinch Airport was equal with January 1881 and 1940 as the lowest for any month since records began in Glasgow in 1869.

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